

WARM UP

For each question:

- Solve the inequality
- Write the answer in *interval* notation
- Write the answer in *set builder* notation
- AND sketch a number line

USE YOUR NOTES! Please!

Question 1:

$$-4x - 8 < -4$$

Question 2:

$$7x + 3 \geq 4x - 9$$

Question 3:

$$4(x + 2) < 2(3x - 5)$$

Agenda:

- 1) Warm up
- 2) Correct Quiz
- 3) Destination Check
- 4) Inequality Word Problems

Test 1 Re-Write: TODAY @ 12

Quiz: next Monday, Nov 2

World 3 Test: next Thurs. Nov 5

QUIZ!!!!

Topics

- Interval notation
- Solving inequalities
- Inequality Word Problems

CAN use a memory aid. Idea: start adding on from your last one!

TYPE 5 EQUATIONS

Solve the following:

$$\frac{3}{2x + 2} = \frac{4}{8x + 1}$$

$$3(8x + 1) = 4(2x + 2)$$

$$24x + 3 = 8x + 8$$

$$\begin{array}{r} -8x \quad -8x \\ 24x + 3 = 8x + 8 \\ \hline 16x + 3 = 8 \end{array}$$

$$16x + 3 = 8$$

$$\begin{array}{r} -3 \quad -3 \\ 16x + 3 = 8 \\ \hline 16x = 5 \end{array}$$

$$\underline{16x = 5}$$

$$16 \quad 16$$

$$x = 0.31$$

Example 1:

Hannah and Caroline are trick-or-treating this Halloween. Hannah collects eight candies less than triple the number Caroline collects. They want to get at least 200 candies total.

How many must Caroline collect?

Caroline: $3x - 8$

Hannah: x

$$3x - 8 + x \geq 200$$

$$4x - 8 \geq 200$$

$$4x \geq 208$$

$$x \geq 52$$

Caroline: $3x - 8 = 3(52) - 8 = 148$

Caroline must collect **at least** 148 candies!



EXAMPLE 2: The perimeter of a rectangular field is at least 178 m. Its length is 5m more than triple its width. What is the minimum AREA of the field?

Let width = x

Let length = $3x + 5$

$$\begin{aligned} 2w + 2l &\geq P \\ 2w + 2(3w + 5) &\geq 178 \end{aligned}$$

$$2w + 6w + 10 \geq 178$$

$$8w + 10 \geq 178$$

$$- 10 \quad -10$$

$$8w \geq 168$$

$$\div 8 \quad \div 8$$

$$w \geq 21\text{m}$$

$$l \geq 3(21) + 5$$

$$l \geq 68\text{m}$$

$$\begin{aligned} A &\geq l \times w \\ &\geq (68 \times 21) \\ &\geq 1428 \text{ m}^2 \end{aligned}$$

The minimum area of the field is 1428 m².



EXAMPLE 3

- Jess scored 62 and 78 on her first two tests. What does she need on her third test to have an average mark of *at least* 75?

let x = the third test

$$\frac{62 + 78 + x}{3} \geq 75$$

$$\frac{62 + 78 + x}{3} \geq \frac{75}{1}$$

$$\frac{140 + x}{3} \geq \frac{75}{1}$$

Now cross multiply!

$$140 + x \geq 225$$

$$x \geq 85$$

Jess has to score at least 85 on the third test.

